

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method, comprising:
receiving, by a network device, a packet fragment of a packet;
determining, by said network device, if said received packet fragment is a head fragment or a non-head fragment of said packet; and
if the received packet fragment is determined to be the head fragment of said packet:

generating, by said network device, a session associated with the head fragment;

processing, by said network device, the head fragment to determine a destination address for said head fragment, and forwarding by said network device said head fragment to said determined destination address said generated session having a period of time to store forwarding information, including said determined destination address, for said packet or a fragment thereof; and

applying, by said network device, said destination address which is obtained from said generated session for said head fragment, which was determined by said processing of said head fragment, to at least one non-head fragment of said packet that was stored prior to receiving said head fragment and to at least one non-head fragment of said packet that is received after said forwarding said head fragment;

said applying includes adding to the non-head fragments, by said network device, a routing tag that includes said destination address that was determined by said processing of said head fragment.

2. (Currently Amended) The method of claim 1 wherein said processing the head fragment includes generating, by said network device, a session pointer data structure associated with said generated session and having the destination address, the method further comprising after processing the head fragment:

~~locating, by said network device, said destination address from the session pointer data structure that was generated during the processing of the head fragment; and~~

said applying said destination address to said at least one non-head fragments fragment includes applying, by said network device, the destination address located from said session pointer data structure to said at least one non-head fragments fragment.

3. (Previously Presented) The method of claim 1 wherein said receiving said packet fragment includes receiving, by said network device, a fragment of an IP-fragmented packet.

4. (Previously Presented) The method of claim 1 wherein the head fragment includes all header information from said packet, and the non-head fragments include packet data from said packet.

5. (Currently Amended) The method of claim 1 wherein both the head and non-head fragments contain duplicative header information from said packet, and:

said processing the head fragment includes processing, by said network device, one of the fragments having the header information as the head fragment; and

said applying includes designating, by said network device, other ones of the fragments having the header information as the non-head fragments.

6. (Canceled)

7. (Currently Amended) The method of claim 1 wherein said applying includes adding to the at least one non-head fragment, by said network device, a routing tag that

~~includes said destination address obtained from said generated session, said routing tag specifies the destination address, which is being located at a receiver end outside of an exit point of said network device.~~

8. (Previously Presented) The method of claim 1 wherein said processing the head fragment includes processing, by said network device, the head fragment according to at least one of Layer 4 through Layer 7 criteria.

9. (Currently Amended) A method, comprising:
if a head fragment of a packet is received, generating a session associated with the received head fragment of the packet;

determining a destination address for a the received head fragment of a the packet, said generated session having a period of time to store forwarding information, including the determined destination address, for the packet or a fragment thereof; and

forwarding said head fragment to said determined destination address; and

applying the determined destination address which is obtained from said generated session to any corresponding non-head fragment of said packet that is received subsequently after said forwarding the head fragment and to any corresponding stored non-head fragment of said packet that is received prior to receiving the head fragment;

said applying the determined destination address to the non-head fragments includes overwriting a destination address field of these non-head fragments with said determined destination address.

10. (Currently Amended) The method of claim 9, further comprising:
forwarding said head fragment to said determined destination address; and
forwarding the any corresponding non-head fragments fragment having the determined obtained destination address applied thereto.

11. (Currently Amended) A method, comprising:

if a head fragment of a packet is received, generating a session associated with the received head fragment of a ~~the~~ packet, said generated session-being having a period of time to store forwarding information for the packet or a fragment thereof; and

obtaining a destination address of the head fragment from the generated session;

applying the obtained the forwarding information obtained from the generated session, including a destination address, to any corresponding non-head fragment of said packet that is received subsequently after forwarding the head fragment, said applying including overwriting a destination address field of said any corresponding non-head fragment with said obtained destination address; and

storing any corresponding non-head fragment of the packet that is received before said generating the session, and applying the obtained destination address to said stored any corresponding non-head fragment of said packet by overwriting a destination address field of said stored any corresponding non-head fragment with said obtained destination address, after the session has been generated.

12. (Canceled)

13. (Currently Amended) An article of manufacture, comprising:

a non-transitory computer-readable medium having instructions stored thereon that are executable by a processor to handle fragments, by:

determining if a fragment of a packet is either a head fragment or a non-head fragment;

if the received packet fragment is determined to be the head fragment of said packet;

generating a session associated with the head fragment;

processing the head fragment if it is determined to be said head fragment to determine a destination address for said head fragment and forwarding said head fragment to said determined destination address, said generated session having a period

of time to store forwarding information, including said determined destination address, for said packet or a fragment thereof; and

applying the determined destination address which is obtained from said generated session to any corresponding non-head fragment of said packet that is received subsequently after said forwarding the head fragment and to any corresponding stored non-head fragment of said packet that is received prior to receiving the head fragment;

said applying the determined destination address includes applying to the non-head fragments a routing tag that includes said determined destination address.

14. (Currently Amended) The article of manufacture of claim 13 wherein the computer-readable medium further includes instructions stored thereon that are executable by said processor to handle fragments, by:

forwarding the non-head fragments having the obtained determined destination address applied thereto.

15. (Currently Amended) The article of manufacture of claim 13 wherein the computer-readable medium further includes instructions stored thereon that are executable by said processor to handle fragments, by:

generating a session associated with the head fragment, said generated session being a period of time to store forwarding information for the packet or a fragment thereof;

obtaining the destination address from the generated session, and said applying the determined destination address to any corresponding non-head fragment of said packet that is received subsequently after said forwarding the head fragment includes applying the destination address obtained from said session to said any corresponding non-head fragment received subsequently after said forwarding the head fragment; and

storing a plurality of corresponding non-head fragments if the session has not been generated, and said applying the determined destination address to any corresponding stored non-head fragment of said packet includes subsequently applying the determined obtained

destination address to said stored plurality of non-head fragments after the session has been generated.

16. (Currently Amended) The article of manufacture of claim 13 wherein said applying the obtained destination address includes applying a routing tag to non-head fragments of the packet, wherein said routing tag specifies the destination address, which is located at a receiver end outside of an exit point of a network device that forwards the non-head and head fragments.

17. (Currently Amended) A system, comprising:

a means for determining if a fragment of a packet is either a head fragment or a non-head fragment;

a means for processing the fragment if it is determined to be a head fragment to determine a destination address for said head fragment and for generating a session associated with the head fragment, said generated session having a period of time to store forwarding information, including said determined destination address, for said packet or a fragment thereof;
and

~~a means for forwarding said head fragment to said determined destination address; and~~

a means for applying the determined destination address which is obtained from said generated session to any corresponding non-head fragment of said packet ~~that is received subsequently after said forwarding the head fragment and to any corresponding stored non-head fragment of said packet that is received prior to receiving the head fragment;~~

~~said means for applying the determined destination address to the non-head fragments overwrites a destination address field of these non-head fragments with said determined destination address.~~

18. (Currently Amended) The system of claim 17, further comprising means for forwarding said head fragment to said destination address, wherein said means for forwarding

further forwards the non-head fragments having the obtained ~~determined~~-destination address applied thereto.

19. (Currently Amended) The system of claim 17, wherein ~~said means for processing further comprising:~~

~~generates a session associated with the head fragment, said generated session being a period of time to store forwarding information for the packet or a fragment thereof; and~~

~~obtains the destination address from the session;~~

~~said means for applying the determined destination address that includes said destination address to any corresponding non-head fragment of said packet that is received subsequently after said forwarding the head fragment applies the destination address obtained from said session to said any corresponding non-head fragment received subsequently after the head fragment; and~~

~~the system further comprising:~~

~~a means for storing a plurality of corresponding non-head fragments if the session has not been generated, and said means for applying the ~~determined~~ obtained destination address to said any corresponding stored non-head fragment of said packet subsequently applies the ~~determined~~ obtained destination address to said stored plurality of non-head fragments after the session has been generated.~~

20. (Currently Amended) A system, comprising:

an entry point to receive packet fragments of a packet;

a network device coupled to the entry point to determine if a packet fragment received at the entry point is a head fragment of said packet, and to generate a session associated with the head fragment if the received packet fragment is determined to be the head fragment, said generated session having a period of time to store forwarding information, including a destination address, for said packet or a fragment thereof;

a storage unit coupled to the network device to store non-head fragments of said packet that are received at the entry point ~~prior to receipt of said head fragment; and~~

~~the network device forwards the head fragment to be processed to determine a destination address for said head fragment; and~~

an exit point coupled to the network device, said non-head fragments stored at the storage unit are updated at the exit point with said destination address which is obtained from said generated session~~that is determined from said processing of the head fragment, the exit point applies said determined destination address to at least one non-head fragment of said packet that is received after said head fragment is forwarded to said determined destination address;~~

~~the exit point said applies the determined destination address by an overwrite of a destination address field of said at least one non-head fragment with said determined destination address.~~

21. (Previously Presented) The system of claim 20 wherein the network device includes a switch to receive said fragments, which were fragmented from said packet by a router.

22. (Previously Presented) The system of claim 20 wherein the entry and exit points are included as parts of at least one software-based function.

23. (Currently Amended) The system of claim 20 wherein the network device forwards the head fragment to be processed to determine said destination address, said processing of the head fragment includes at least one from a plurality of Layer 4 through Layer 7 processing.

24. (Currently Amended) The system of claim 20 wherein the network device processes~~processing of the head fragment to determine said destination address is performed in the network device.~~

25. (Currently Amended) The system of claim ~~20~~ 23, further comprising at least another network device coupled to the exit point to perform said processing of the head fragment.

26. (Previously Presented) The system of claim 20, further comprising another storage unit, coupled to the exit point, to store the destination address.

27. (Original) The system of claim 20, further comprising a software program to operate in conjunction with the network device to handle the non-head and head fragments.

28. (Currently Amended) An apparatus to handle packet fragments, the apparatus comprising:

a network device to receive a head fragment of a packet, to process the received head fragment to determine a destination address for said head fragment and to ~~forward the head fragment to said determined destination address~~ generate a session associated with the received head fragment, said generated session having a period of time to store forwarding information, including the determined destination address, for said packet or a fragment thereof, and to apply the determined destination address which is obtained from said generated session to any corresponding non-head fragment of said packet that is received subsequently after the head fragment is forwarded and to any corresponding stored non-head fragment that is received prior to receipt of the head fragment,

~~said network device performs said apply said determined destination address by addition, to said non-head fragments, of a routing tag that includes said determined destination address.~~

29. (Previously Presented) The apparatus of claim 28 wherein said network device includes a switch to receive said fragments, which were fragmented from said packet by a router.

30. (Currently Amended) The apparatus of claim 28 wherein to said apply the destination address, the network device applies a routing tag to the corresponding non-head fragment, said routing tag specifies the destination address, which is located at a receiver end outside of an exit point of said network device.

31. (Previously Presented) The apparatus of claim 28 wherein said network device performs said process said head fragment according to at least one of Layer 4 through Layer 7 criteria.

32. (Canceled)

33. (Currently Amended) An apparatus to handle packet fragments, the apparatus comprising:

a switch to receive a head fragment of a packet, to process the received head fragment to determine a destination address for said head fragment, to generate a session associated with the received head fragment, said generated session having a period of time to store forwarding information, including the determined destination address, for said packet or a fragment thereof, and to apply the ~~determined~~-destination address which is obtained from said generated session to any corresponding non-head fragment of said packet ~~that is received subsequently after the head fragment and to any corresponding stored non-head fragment that is received prior to the head fragment,~~

~~said switch performs said apply said determined destination address by addition of a routing tag to said non-head fragments that includes said determined destination address,~~
and

~~said switch performs said process said head fragment according to at least one of Layer 4 through Layer 7 criteria~~

said switch performs said apply by an overwrite of a destination address field of said any corresponding non-head fragment with said obtained destination address.

34. (Currently Amended) The apparatus of claim 33 wherein said switch performs said apply said ~~determined~~ destination address obtained from said generated session to said any corresponding non-head fragment that is received subsequently after the head fragment is forwarded to said destination address.

35. (Currently Amended) The apparatus of claim 33 wherein said switch performs said apply said destination address obtained from said generated session by application of a routing tag to said any corresponding non-head fragment, said routing tag specifies the destination address, which is located at a receiver end outside of an exit point of said switch.